Siskiyou 47-AA-0001

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 89-203

WASTE DISCHARGE REQUIREMENTS FOR MC CLOUD COMMUNITY SERVICES DISTRICT MC CLOUD CLASS III LANDFILL SISKIYOU COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The McCloud Community Services District (hereafter Discharger) submitted a Site Evaluation Report and a Monitoring Report, dated 10 April 1986; a Data Report, dated 20 October 1987; and a Solid Waste Assessment Questionnaire, dated 11 July 1988.

2. The Discharger requests revised waste discharge requirements (WDRs) for reclassification of an existing Class II-2 landfill to a Class III landfill waste management unit (WMU). The WMU is currently regulated by WDR Order No. 75-031 which is no longer in conformance with the California Code of Regulations (CCR), Title 23, Chapter 3, Subchapter 15 (hereafter Subchapter 15).

3. The 28.2-acre disposal site, comprised of Assessor's Parcel Nos. 49-06-22, 49-07-05, and 28-44-41, is owned and operated by the Discharger. Waste disposal activities are currently limited to seven acres of the site. The site is 3/4-mile southeast of the town of McCloud in Sections 6 and 7, T39N, R2W, MDB&M, as shown on Attachment "A" which is incorporated herein and made part of this Order.

4. The disposal site consists of a landfill with separate trenches for wood waste, household refuse, and tires.

5. This is an existing facility, first operated by Champion International Corporation as an open dump in the early 1950's. In 1975, the McCloud Community Services District began operating the site as a sanitary landfill. In 1986, the site was deeded to the McCloud Community Services District by Champion International Corporation. The Discharger plans to discharge solid wastes at the site until 2086. The total capacity of the landfill is estimated at 520,000 cubic yards. The remaining capacity is estimated at 484,000 cubic yards.

6. The Discharger plans to continue short-term stockpiling of car bodies, large metal items, and white goods. Salvage operators remove the car bodies, metal, and white goods for recycling off-site.

WASTES AND THEIR CLASSIFICATION

7. The Discharger proposes to continue to discharge municipal solid wastes and inert wastes for disposal in a Class III landfill, as shown on Attachment "B". These wastes have been classified as 'nonhazardous solid waste' or 'inert waste', respectively, using the criteria set forth in Subchapter 15. The site currently receives approximately 10 cubic yards of refuse daily. The area served by the landfill is the community of McCloud.

DESCRIPTION OF THE SITE

8. The facility is 3/4-mile east of McCloud and south of Highway 89. The site is on a plateau and has a surface slope slightly to the west-southwest at a grade of approximately three percent. Site elevation is approximately 3,285 feet mean sea level (MSL).

9. Land within 1,000 feet of the site is vacant forestland in public and private ownership.

10. Surface soils consist of clay, silt, sand, gravel, and cobbles derived from tuffs and alluvial deposits of reworked tuff mixed with coarse gravel deposits. The tuff deposits are irregular and lenticular. This formation is at least 120 feet thick and exhibits a permeability rate of 1.6×10^{-6} centimeters/second.

11. The tuff deposit is underlain by fractured basalt and massive andesite which, in turn, is underlain by a deep unit consisting of red cinders and flowing sands at approximately 210 feet. These deposits (originating from volcanic explosion and mudslides) include well-stratified andesitic tuff-breccias and lapilli tuffs; basaltic agglomerates composed of rounded lapilli and bombs; and tuffs of andesitic, basaltic, dacitic, and rhyolitic composites. The rhyolitic tuffs are found primarily in the upper part of the deposits.

12. An active unnamed quaternary fault is within one mile southwest of the landfill site. An open section of the fault is in pond number two of the McCloud Community Services District's sewage treatment plant.

13. The first water-bearing formation is approximately 190 feet below the base of the WMU. The hydraulic gradient is generally from northeast to southwest. Movement of ground water is within fractured basalts, lava tubes, and other geologic phenomenon such as flowing sands, and is difficult to measure. The quality of this water is excellent with total dissolved solids (TDS) ranging from 94 mg/l to 130 mg/l. There was no indication of a perched zone below this site.

14. The ground water monitoring system currently consists of one upgradient well designated OB-1 and two downgradient wells designated OB-2 and OB-3, as shown on Attachment "B".

15. The beneficial uses of ground water are domestic, municipal, and agricultural supply.

16. The site receives an average of 52 inches of precipitation per year as measured at McCloud between the years 1940 and 1976. The mean evaporation for this facility is 50 inches per year. Based on these data, annual net evaporation at the site is -2 inches.

17. The 1,000-year, 24-hour precipitation event for the facility is 9.25 inches; and the 100-year, 24-hour precipitation event is 7.32 inches, as calculated from information in Department of Water Resources Bulletin No. 195, "Rainfall Analysis for Drainage Design".

18. The facility is not within a 100-year floodplain.

19. Surface drainage is to Squaw Valley Creek, which is a tributary of the McCloud River which flows into Shasta Lake.

20. The beneficial uses of Squaw Valley Creek are agricultural water supply; recreation; esthetic enjoyment; and preservation and enhancement of fish, wildlife, and other aquatic resources.

21. The Discharger's data provide sufficient justification to demonstrate 190 feet of the natural geologic materials between the base of the Class III landfill and ground water will prevent the impairment of beneficial uses of ground water from the discharge of 'nonhazardous solid wastes' to the landfill unit during operation closure and the post-closure maintenance period.

CERTIFICATION

22. The landfill has not been certified as being in compliance with siting requirements of Subchapter 15.

CEQA CONSIDERATIONS

23. The action to update WDRs for this existing landfill is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, Section 15301, CCR.

OTHER LEGAL REFERENCES

24. The Water Quality Control Plan for the Sacramento River, Sacramento-San Joaquin Delta, and San Joaquin River Basins (5A, 5B, 5C) was adopted on 25 July 1975. This Order implements the water quality objectives stated in that Plan. Furthermore, this Order implements the prescriptive standards and performance goals of Subchapter 15, effective 27 November 1984.

25. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

26. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.

27. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 75-031 be rescinded and the McCloud Community Services District, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The discharge of 'hazardous waste' and 'designated waste' at this site is prohibited. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Subchapter 15.

2. The discharge of liquid or semisolid waste (i.e., waste containing less than 50-percent solids) at this site is prohibited.

3. The discharge at this site of solid waste containing free liquid or moisture in excess of the waste's moisture-holding capacity is prohibited.

4. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or ground water is prohibited.

5. The discharge of waste to ponded water from any source is prohibited.

6. The discharge of waste within 100 feet of surface waters is prohibited.

7. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which, in turn,:

   a. require a higher level of containment than provided by the unit,

   b. are 'restricted hazardous wastes', or

   c. impair the integrity of containment structures,

   is prohibited.

B. Discharge Specifications

GENERAL SPECIFICATIONS

1. Wastes shall be discharged only into WMUs specifically designed for their containment and/or treatment, as stated in Findings 3 and 4 of this Order and shown on Attachment "B".

General WMU Construction

2. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the site.

3. Clay liners and landfill caps shall have a maximum hydraulic conductivity of 1×10^{-6} centimeters/second and a minimum relative compaction of 90 percent. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field testing of the finished liner using a method approved by the Regional Board. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cap meet the hydraulic conductivity and compaction requirements.

Supervision And Certification Of Construction

4. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards and performance goals of Subchapter 15 prior to waste discharge.

Water Quality Protection Standards

5. The concentrations of indicator parameters or waste constituents in waters passing through the Points of Compliance shall not exceed the "water quality protection standards" established pursuant to and enumerated in Monitoring and Reporting Program No. 89-203, which is attached to and made part of this Order.

Protection from Storm Events

6. The site shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period. The Class III landfill shall be constructed and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundating erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.

7. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff and 100-year, 24-hour precipitation conditions, as described in Finding No. 17 above.

8. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

9. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding at the site.

10. Water used for site maintenance shall be limited to the minimum amount necessary for dust control.

11. The Discharger shall remove and relocate any wastes discharged at this site in violation of this Order.

LANDFILL SPECIFICATIONS

12. During the rainy season, when precipitation can be expected, a minimum one-foot thickness of low-permeability cover shall be maintained over all but the active disposal area of the landfill. The active disposal area shall be confined to the smallest area practicable based on the anticipated quantity of waste discharge and other disposal site operations.

13. Methane and other landfill gases shall be adequately vented, removed from the landfill unit, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the vadose (unsaturated) zone.

WMU CLOSURE SPECIFICATIONS

14. The closure of each WMU shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

15. Closed WMUs shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

Landfill Closure Specifications

16. At closure, each landfill unit shall receive a final cover which is designed and constructed to function with minimum maintenance and consists, at a minimum, of a two-foot-thick foundation layer which may contain waste materials, overlain by a one-foot-thick clay liner, and finally by a one-foot-thick vegetative soil layer or an engineered equivalent final cover approved by the Board pursuant to Subsections 2510(b) and (c) of Subchapter 15.

17. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance, and shall have a rooting depth not in excess of the vegetative layer thickness.

18. Closed landfill units shall be graded to at least a three-percent grade and maintained to prevent ponding.

19. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

C. Provisions

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

3. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. The Discharger shall also notify the Board of any material change in the character, location, or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given **180 days** prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.

4. The Discharger shall comply with Monitoring and Reporting Program No. 89-203, which is attached to and made part of this Order.

5. The Discharger shall maintain legible records of the volume and type of each waste discharged at each landfill unit and the manner and location of discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.

6. Within **180 days** of the adoption of these requirements, the Discharger shall submit to the Board and to the Department of Health Services, for approval, a report describing a periodic load-checking program to be implemented by the Discharger to ensure that 'hazardous wastes' and 'designated wastes' are not discharged to the Class III landfill unit.

7. If the Discharger or the Board, through a detection monitoring program, finds there is a statistically significant increase in indicator parameters or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. 89-203) at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within **90 days**, the Discharger shall submit to the Board the results of the resampling and either:

   a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or

b. an amended Report of Waste Discharge for the establishment of a verification monitoring program, per Section 2557 of Subchapter 15, which is designed to verify that water quality protection standards have been exceeded and to determine the horizontal and vertical extent of pollution.

8. If the Discharger, through a verification monitoring program, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within **7 days**. Within **180 days**, the Discharger shall submit to the Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 2558 of Subchapter 15, which is designed to achieve compliance with the water quality protection standards.

9. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. 89-203, as required by Sections 13750 through 13755 of the California Water Code.

10. The Discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

11. Within **one year** of the adoption of these requirements, the Discharger shall submit to the Board for approval a closure and post-closure maintenance plan describing the methods and controls to be used to assure protection of the quality of surface and ground waters of the area during final operations and during any proposed subsequent use of the land. The plan must include:

    a. an estimate of closure and post-closure maintenance costs,

    b. a proposal for a trust fund or equivalent financial arrangement to provide sufficient funding for closure and post-closure maintenance, and

    c. the amount to be deposited in the trust fund or equivalent financial arrangement each year.

    This plan shall be prepared by or under the supervision of a California registered civil engineer or certified engineering geologist, updated annually, and submitted to the Board by the **15th day of January** of each year. The method used to close each WMU at the facility and maintain protection of the quality of surface and ground waters shall comply with waste discharge

requirements established by the Board and the most current version of the closure and post-closure maintenance plan which has been approved by the Board. The final report shall be submitted at least 180 days prior to final closure of the facility. In order to avoid duplication or the preparation of separate closure plans, the Board's requirements for closure may be incorporated into the overall closure plan prepared under Section 66796.22 of the Government Code.

12. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill unit(s), the vadose zone, and surface waters per Monitoring and Reporting Program No. 89-203 throughout the post-closure maintenance period.

13. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all landfill units will not threaten water quality.

14. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated 1 September 1985, which are hereby incorporated into this Order.

15. The owner of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the landfill units and during subsequent use of the property for other purposes.

16. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

17. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. 89-203, in accordance with the following time schedule:

Task	Compliance Date
Submit report describing a periodic load-checking program	180 days after adoption
Submit report describing closure and post-closure maintenance of the facility	1 year after adoption

18. The Discharger shall comply with all applicable provisions of Subchapter 15 that are not specifically referred to in this Order.

19. The Board will review this Order periodically and will revise these requirements when necessary.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 27 October 1989.

WILLIAM H. CROOKS, Executive Officer

GDD:gln

Amended 10/27/89

Attachments

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 89-203
FOR
MC CLOUD COMMUNITY SERVICES DISTRICT
MC CLOUD CLASS III LANDFILL
SISKIYOU COUNTY

NONHAZARDOUS SOLID WASTE MONITORING

The Discharger shall monitor all wastes discharged to the Class III landfill unit on a monthly basis and report to the Board as follows:

Parameter	Report in Units of	Frequency of Reporting
Quantity discharged	cubic yards	Quarterly
Type of material discharged	--	Quarterly
Source(s) of material discharged	--	Quarterly
Minimum elevation of discharge	feet, MSL	Quarterly
Capacity of landfill unit	percent	Annually

GROUND WATER MONITORING

The following detection monitoring program shall be implemented at the facility to determine both background and downgradient concentrations of indicator parameters. The monitoring network shall consist of "background" monitoring well OB-1 and downgradient monitoring wells OB-2 and OB-3, and shall constitute the "points of compliance" with respect to ground water. The locations of these wells are shown on Attachment "B". The following shall be measured when sampling ground water:

Parameter/Constituent	Report in Units of	Sampling Frequency
Chemical Oxygen Demand	mg/l	Quarterly
Specific Conductance	umhos/cm	Quarterly
pH	pH units	Quarterly
Total Dissolved Solids	mg/l	Quarterly
Dissolved Organic Carbon	mg/l	Quarterly
Chlorides	mg/l	Quarterly
Sulfates	mg/l	Quarterly
Dissolved Iron[1]	mg/l	Quarterly
Total Kjeldahl Nitrogen	mg/l	Quarterly
Sulfides (including H_2S)	presence or absence	Quarterly
Nitrates	mg/l	Quarterly
Calcium	mg/l	Quarterly
Magnesium	mg/l	Quarterly

[1] Inductively Coupled Argon Plasma Atomic Emission Spectroscopy (ICAP) may be used for analysis of these constituents only.

(Continued)

Parameter/Constituent	Report in Units of	Sampling Frequency
Sodium	mg/l	Quarterly
Iron	mg/l	Quarterly
Potassium	mg/l	Quarterly
Alkalinity (Bicarbonate and Carbonate)	mg/l	Quarterly
Turbidity	NTUs	Quarterly
Volatile Organics[2]	ug/l	Annually
Aluminum[1]	mg/l	Annually
Arsenic	mg/l	Annually
Cadmium[1]	mg/l	Annually
Total Chromium (III+VI)[1]	mg/l	Annually
Chromium (VI)	mg/l	Annually
Copper[1]	mg/l	Annually
Lead[1]	mg/l	Annually
Manganese[1]	mg/l	Annually
Mercury	mg/l	Annually
Nickel[1]	mg/l	Annually
Selenium	mg/l	Annually
Silver[1]	mg/l	Annually
Thallium[1]	mg/l	Annually
Zinc[1]	mg/l	Annually

[1] Inductively Coupled Argon Plasma Atomic Emission Spectroscopy (ICAP) may be used for analysis of these constituents only.
[2] EPA Methods 601 and 602, or EPA Method 624 shall be used. All peaks shall be reported.

The ground water surface elevation (in feet and hundredths, MSL) in all wells shall be measured on a monthly basis and used to determine the velocity and direction(s) of ground water flow.

WATER QUALITY PROTECTION STANDARDS

Quarterly samples shall be taken from well OB-1 for one year and analyzed for each of the parameters and constituents listed under "GROUND WATER MONITORING" above. Each time the system is sampled, a minimum of four discrete samples shall be taken for analysis of each parameter/constituent from the entire system used to determine background water quality. Analyses shall account for measurement errors in sampling

and analysis. Data from these analyses shall be reported to the Board by **1 January 1991** for use by the Board in determining water quality protection standards for ground waters at the site.

If subsequent water sampling indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of these water quality protection standards.

STATISTICAL PROCEDURES FOR DETERMINING SIGNIFICANT INCREASES

The significance of increases in indicator parameters and waste constituents over water quality protection standards shall be established through the use of the statistical procedures described in Article 5 of Subchapter 15.

REPORTING

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements.

Quarterly monitoring reports shall be submitted to the Board by the **15th day** of the following month, the month in which the samples were taken. Quarterly, semiannually, and yearly monitoring reports shall be submitted to the Board by the **15th day** of the month following the calendar quarter in which the samples were taken or observations made.

The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Board.

A report shall be submitted to the Board by **30 January** of each year containing both tabular and graphical summaries of the monitoring data obtained during the previous year. The report shall include a discussion of compliance with the waste discharge requirements.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by _____
WILLIAM H. CROOKS, Executive Officer

27 October 1989
(Date)

GDD:gln 10/3/89

INFORMATION SHEET

MC CLOUD COMMUNITY SERVICES DISTRICT
MC CLOUD CLASS III LANDFILL
SISKIYOU COUNTY

The McCloud Community Services District (CSD) operates a landfill 3/4-mile southeast of the town of McCloud.

The landfill was first operated by Champion International Corporation as an open burn dump in the early 1950's. In 1975, the McCloud CSD began operating the site as a sanitary landfill. Champion International Corporation deeded the 28.2-acre site to the CSD. The site serves approximately 2,800 people in and around McCloud. The site has a total capacity of 520,000 cubic yards and a remaining capacity estimated at 484,000 cubic yards. The Discharger plans to operate the site for at least the next 99 years.

The landfill is situated on a plateau which has a surface slope slightly to the west-southwest at a grade of approximately three percent. The site is situated on volcanic formations caused by pyroclastic flows and landslide deposits of reworked tuff mixed with coarse grain deposits. This formation is at least 120 feet thick and exhibits a permeability of 1.6×10^{-6} centimeters/second.

Ground water is approximately 190 feet below the site and is of excellent water quality. Movement of ground water is within fractural basalts, lava tubes, and other geologic phenomenon such as flowing sands. There was no indication of a perched water table below the landfill site.

The landfill currently accepts 10 cubic yards of 'nonhazardous solid waste' and 'inert waste' daily.

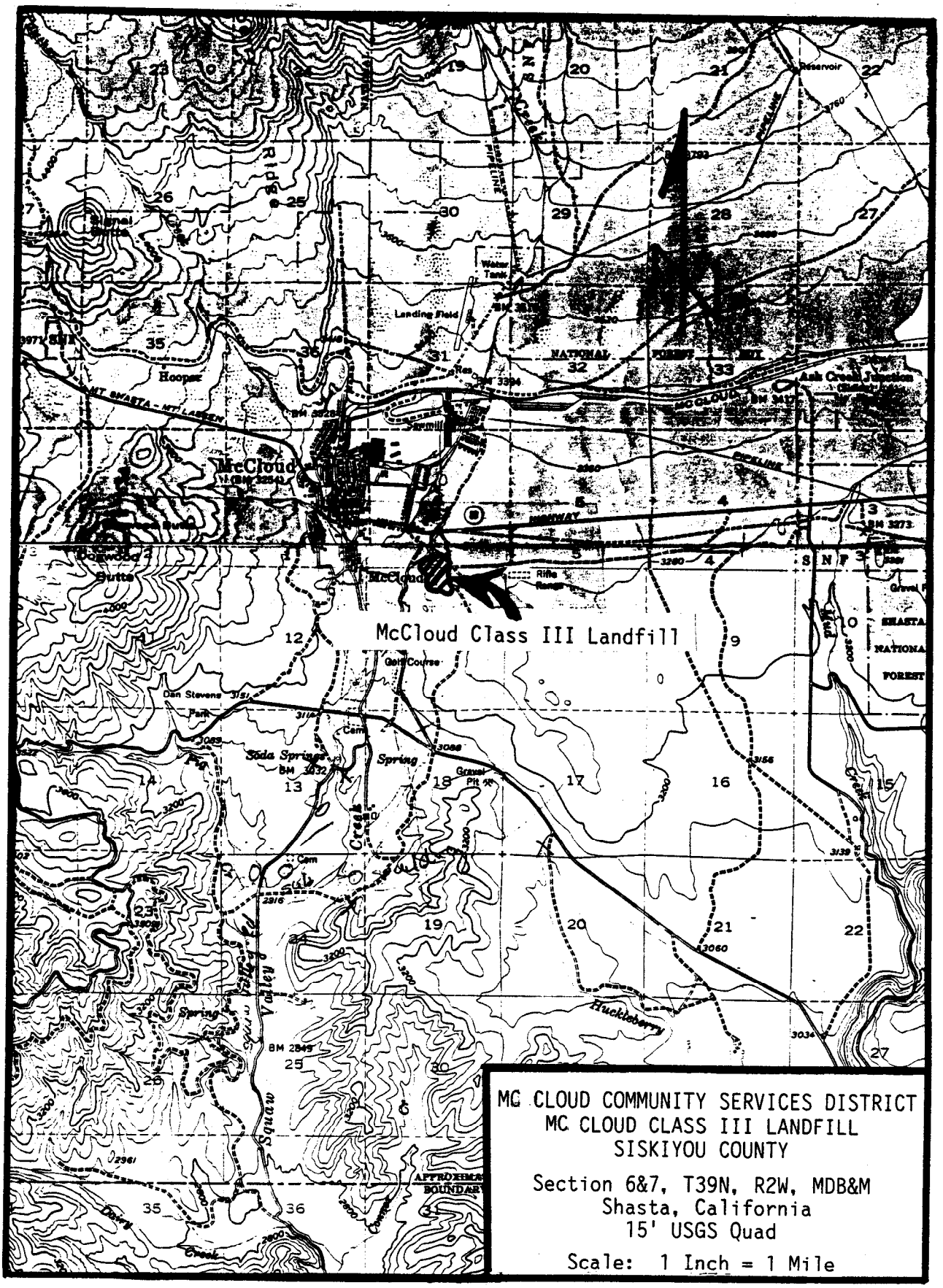
A geologic study completed in October 1987 demonstrates the natural geologic materials between the base of the landfill and ground water will prevent the impairment of beneficial uses of ground water from the discharge of 'nonhazardous solid wastes' to the landfill unit during the operation, closure, or post-closure maintenance period.

The current ground water monitoring system consists of one upgradient and two downgradient wells. The monitoring system was installed in September 1987.

The average annual rainfall at the site is approximately 52 inches while the mean annual evaporation is approximately 50 inches, resulting in a net evaporation of -2 inches per year.

GDD:gln 10/3/89

ATTACHMENT "A"



ATTACHMENT "B"